



# Clinical Practice Guidelines: Cardiac/Cardiac arrest

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<b>Date</b>	April, 2016
<b>Purpose</b>	To ensure consistent management of patients in cardiac arrest.
<b>Scope</b>	Applies to Queensland Ambulance Service (QAS) clinical staff.
<b>Health care setting</b>	Pre-hospital assessment and treatment.
<b>Population</b>	Applies to all ages unless stated otherwise.
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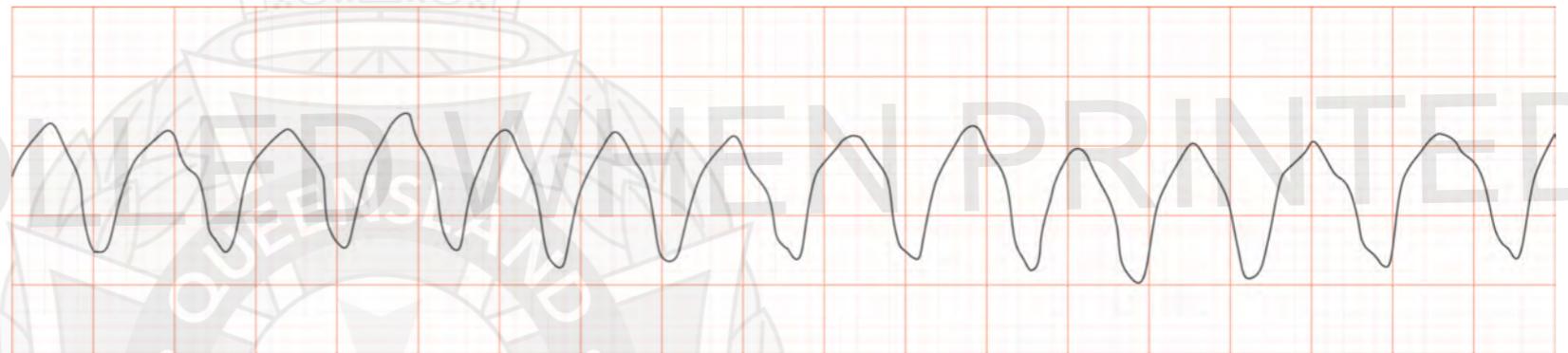
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**Cardiac arrest** occurs when there is the cessation of blood circulation due to the inability of the heart to maintain adequate tissue perfusion. As such, the patient may appear with no signs of life or inadequate perfusion.

In cardiac arrest the heart may be in a number of different rhythms that may be classified as **shockable** (direct current countershock DCCS) and **non-shockable** (DCCS not indicated).<sup>[1-9]</sup>

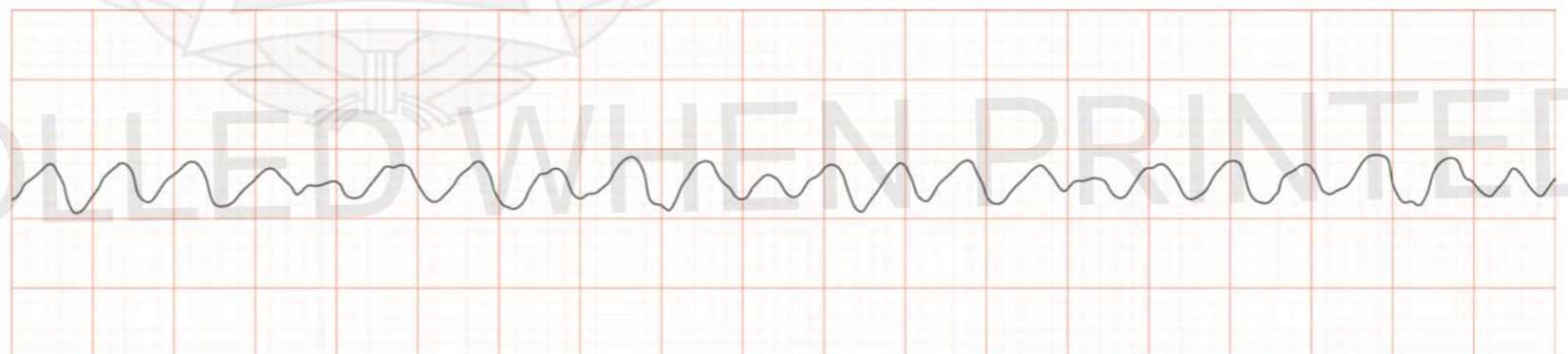
## Shockable

**Pulseless Ventricular Tachycardia (VT)** is a regular broad complex tachycardia (> 100 bpm) which usually occurs when the pacemaker of the heart originates from a single point within a ventricle. There are numerous different types of VT, of which monomorphic VT is the most common. Also occurring is polymorphic VT, which includes torsades de pointes. It may be sustained (> 30 seconds) or non-sustained and may or may not result in haemodynamic instability.



Lead II (25 mm/sec)

**Ventricular Fibrillation (VF)** results from the rapid, irregular, asynchronous depolarisation and contraction of multiple areas of the ventricles. As such, there is inadequate myocardial pump function, resulting in immediate loss of cardiac output. The ECG shows irregular deflections with no discernable P-waves, QRS complexes nor T-waves and ranges from coarse to fine in amplitude.<sup>[2,3, 5-9]</sup>



Lead II (25 mm/sec)

## Non-shockable

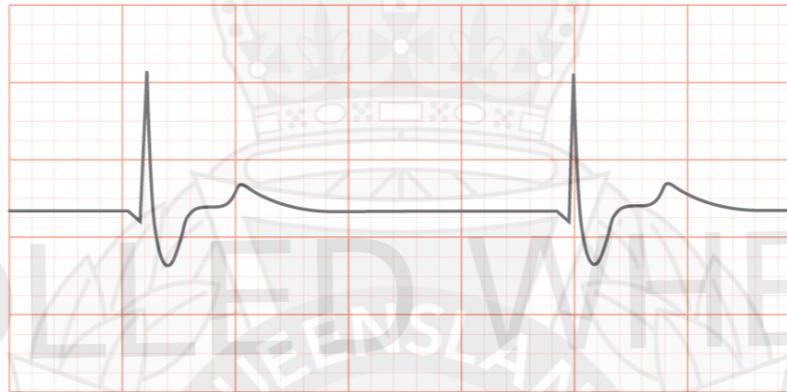
**Pulseless Electrical Activity (PEA)** is the occurrence of organised electrical activity on the ECG with no resulting detectable cardiac output (there is no palpable pulse). In true PEA, the heart does not show cardiac contractions. Pseudo-PEA however, may demonstrate some cardiac wall motion, without adequate cardiac output to produce a palpable pulse. Reversible causes of this arrhythmia should be sought. The rhythms associated with PEA are numerous, however the most frequent include sinus bradycardia, junctional and idioventricular rhythms.

*Sinus bradycardia*



Lead II (25 mm/sec)

*Junctional*



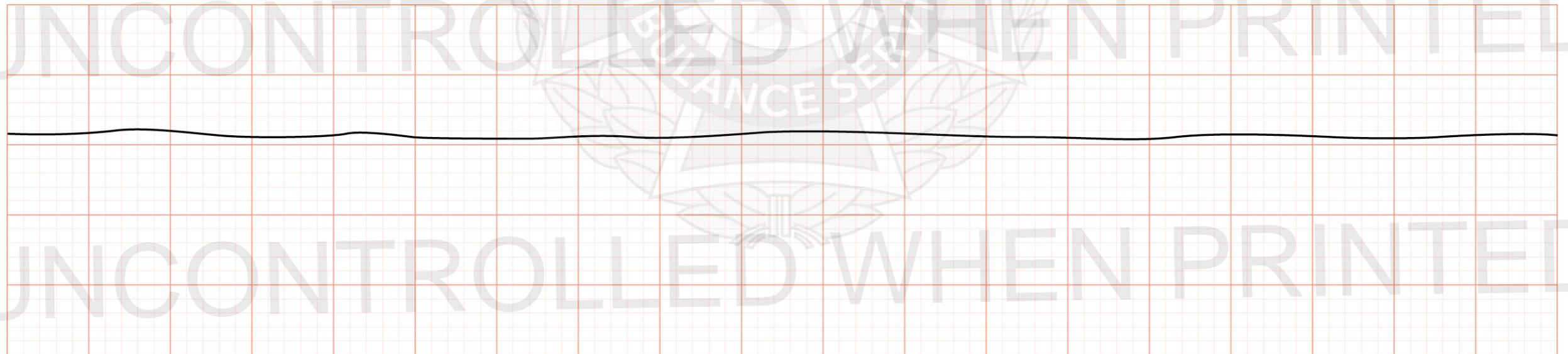
Lead II (25 mm/sec)

*Idioventricular*



Lead II (25 mm/sec)

**Asystole** is the absence of cardiac electrical activity with concomitant myocardial standstill and no cardiac output.



Lead II (25 mm/sec)

## Clinical features



- There are no signs of life:
  - unresponsive
  - not breathing normally
  - carotid pulse cannot be confidently palpated within 10 seconds, **OR**
- There are signs of grossly inadequate perfusion:
  - unresponsive
  - pallor or central cyanosis
  - inadequate pulse
    - < 40 bpm in a child/adult ( $\geq 1$  years)
    - < 60 bpm in an infant (< 1 year)
    - < 100 bpm in a newly born

## Risk Assessment



- Not applicable

## + Additional information

- If there is any uncertainty CPR should be commenced.

CPG: Clinician safety

CPG: Standard cares

Traumatic cardiac arrest?

N

Manage as per appropriate CPG:

- CPG: Resuscitation – Adult
- CPG: Resuscitation – Paediatric
- CPG: Resuscitation – Newly born

Y

Manage as per:

CPG: Resuscitation – Traumatic

*Note: Clinicians are only to perform procedures for which they have received specific training and authorisation by the QAS.*